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an admirable index. This work is now practically a thesaurus of what is known upon the subject.

La Nature et la Genèse des Instincts d'après Weismann, by E. MAIGRE. *L'Année Psychologique*, Vol. XIII, 1906, 230-244.

In this article Maigre has given an exposition of the theory of instincts which appears in Vol. I of Weismann's *The Evolution Theory*, 1904, pp. 141 *et seq.* (English Edition).

For Weismann instincts have a physiological basis in the cells and fibres of the nervous system. They vary and thus become subject to the operation of natural selection. But Maigre points out some instances where Weismann's theory fails. He cites the case of the kitten of Lawson Tait, and the skye-terrier of Hurt. He further reminds the reader that much comparative work is needed on this subject and believes that in the end we shall have to go back to protoplasm for the basis of an explanation of instinct.

W. L. GARD.

L'Inibizione Motrice: studiata sperimentalmente negli ammalati di mente, by ETTORE PATINI. Ed. "Il Lavoro Internazionale Illustrato," Napoli, 1907. pp. 256.

This contribution to experimental psychology is dedicated to Prof. Leonardo Bianchi, with whom the author has worked. It is a comprehensive study of inhibition including a review of the various theories and the forms under which it appears as physiological, cerebral, psychic and psycho-somatic inhibition. The most interesting portion of the book, about one-half, is that devoted to the author's own experiments upon both normal and insane subjects. Libertini (1895) studied cortical inhibition in dogs by comparing the reflex reaction time of normal animals with that of dogs in which portions of the brain had been removed. He found that extirpation of the left frontal lobe diminished the time of the reflex of the fore leg, and that the same result, in a lesser degree, followed from extirpation of the occipital lobe. Fano, from similar experiments, came to the conclusion that the cerebral cortex exercises a tonic inhibitory action upon the spinal cord. Libertini also experimented on the reflex reaction time of the insane and reached the following conclusions:

In all forms of mental maladies the reflex time of arm movements is noticeably shortened.

In normal individuals this is a constant which oscillates between 83σ and 86σ. This diminishes in different forms of mental disease proportionally to the gravity of the affection and the degree of the patient's mental decadence.

In general, forms of exalted insanity show a greater reduction of reaction time than those of a depressive nature.

It is possible experimentally to reduce the latent time of the spinal reflex both in normal individuals and in the insane, the possible reduction being twice as great in the former as in the latter.

Patini's experiments differ from the preceding in the introduction of a new element and an inversion of the problem. The previous experiments have tested the influence of brain upon movement, those of Patini are directed to finding the effect of voluntary movement upon the brain and therefore upon the inhibition exerted by it upon voluntary movement.

His method of experiment was as follows: The subject was seated between two tables, upon one of which was arranged the apparatus necessary for obtaining an accurate record for the time of reflex reaction of the left arm to an electric stimulus. This consisted of a Hipp chronoscope, a Dubois-Raymond induction coil and a special inter-

rupter devised by the author. The right arm of the subject was placed at rest upon the other table with the elbow bent at an angle of 45° . In this position the muscles were contracted sufficiently to support a weight of 5 or 10 kilos, according to the strength of the subject. This position was maintained for some seconds, on an average about forty. This gave a static contraction of the right arm, *i. e.*, a contraction in which no movement takes place but the resistance of the weight is just counterbalanced. During this contraction, the time of the reflex contraction of the left arm to electric stimulus was taken. When fatigue began to set in, as was indicated by the trembling of the arm sustaining the weight, the reflex time of the left arm was again taken, and again after the release of the right arm from the weight. These results were compared with the simple reflex time without the static contraction, thus giving four series of reactions. These series were obtained from 12 normal subjects; young men from eighteen to twenty years, and from 68 subjects suffering from different forms of mental disease. In all but one subject, the reactions of the mentally diseased were shorter than those of normal subjects. In this case, a paralytic dement with progressive epileptic attacks, the reaction time was longer than in any of the normal subjects, thus showing an excess rather than a defect of inhibition. Patini's results agree with those obtained by Libertini in showing a progressive shortening of the reflex time according to the degree and form of the mental disease, but he attaches only a relative value to these results. In the reflexes of the left arm during the voluntary muscular contraction of the right, there was found to be a lengthening of the time, that is to say, the voluntary contraction had an inhibiting effect.

Fatigue increased the variations in the individual reactions. In general, the results of Patini's experiments show that the effects of voluntary contraction, of fatigue and of rest after fatigue in mentally diseased patients differ from those of normal subjects only in degree. The increase of inhibition which was shown by a lengthening of the time in the experiments involving voluntary muscular contraction, was, with the one exception already mentioned, less in insane than in normal subjects. The mean variation of the individual reaction times was, however, greater in insane subjects.

The study as a whole is an interesting contribution to the study of inhibition.

THEODATE L. SMITH.

Contributo allo studio sperimentale della formula endofasica, by
ERRORE PATINI. Premiata scuola tipografico dei sordomuti,
Napoli, 1907. pp. 42.

This is an experimental study of internal speech, following the same lines as Lemaitre's study "*Le Langage interieur des enfants*," published in 1904. Patini experimented with twenty-one subjects, giving them, first, as a test of their introspective ability, a short questionnaire on the character of their mental images. He also makes use of Stricker's method of making his subjects try to pronounce mentally some word containing linguals or dentals with the mouth open and the tongue at rest. Patini's subjects were classified under five types, verbo-motor, visual-motor, auditory-motor, verbo-visual and auditory-visual. Lemaitre made a special category of the symbolic-visual, *i. e.*, of those subjects in which a word was represented by its initial letter or some symbolic object, as the word 'continues' by a chain. Patini, however, thinks that such symbolism, which he finds in eleven of his twenty-one subjects, is probably present in all cases of verbal imagination. He makes a distinction between the symbolism which accompanies the ideas of objects and that which accompanies the abstract idea of relation. The present study is concerned only with the for-